PowerBook FAQ

Introduction

Q. What is new in the latest PowerBook?

A. The new PowerBook features an entirely new architecture, highlighted by new PowerPC G3 processors operating at up to 500 MHz, system bus speed of 100 MHz, 1MB of backside cache on all systems, RAM up to 512MB, fast Ultra ATA/66 hard drives up to 18GB, and the new ATI RAGE Mobility 128 graphics controller. For making Desktop Movies, the new PowerBook features two built-in FireWire ports for transferring video footage from a DV camcorder or external hard drive. The PowerBook also supports AirPort wireless Internet connections with two built-in antennas and an AirPort Card slot.

Q. How do I tell the difference between the new PowerBook and the previous PowerBook G3 Series?

A. Because the thin and light design of the PowerBook G3 Series was so well received, the appearance of the new PowerBook is basically the same as its predecessor, which was introduced in May 1999. The easiest way to tell the difference between the two systems is to look at the name on the display bezel. The previous system has "Macintosh PowerBook G3," while the new PowerBook has simply "PowerBook."

Another way to distinguish the products is to look at the system backplane. The previous system has one SCSI port, while the new system has two FireWire ports. Finally, the configuration label on the bottom of the system indicates the processor speed, hard drive size, and so on.

Q. Is the PowerBook still the fastest portable computer available?

A. Yes. The new PowerBook processors outperform all shipping Pentium III processors for mobile systems.

Processors

Q. How does the performance of the 500-MHz PowerPC G3 processor compare with that of the Intel mobile Pentium III processor?

A. The 500-MHz PowerBook is up to 30 percent faster than Intel 500-MHz Pentium III–based notebook systems, based on processor tests using Adobe Photoshop.

Q. How much faster is the new 500-MHz PowerPC processor than the 400-MHz processor in the previous model?

A. In processor tests using MacBench 5.0, the new PowerBook with a 500-MHz processor is 25 percent faster than the previous PowerBook G3 Series system with a 400-MHz processor. In addition, overall system performance has been improved with a faster system bus of 100 MHz and Ultra ATA/66 hard drives.

Q. Why doesn't the PowerBook have a PowerPC G4 processor?

A. With its PowerPC G3 processors, the new PowerBook is still the fastest notebook computer in the world. To use the G4 technology in a portable system, the processor must be modified to reduce power consumption and heat generation.

Q. What is the system bus speed of the new PowerBook?

A. The system bus speed is 100 MHz, and it contributes to the overall enhanced performance of the system. The system bus is the pipeline between memory, or RAM, and the PowerBook processor. The PowerBook G3 Series had a 66-MHz system bus.

Q. What is backside cache, and why is it important to PowerBook performance?

A. Caching improves system performance by providing quick access to data and instructions en route to the processor. All PowerBook systems now feature 1MB of backside level 2 cache. Most PC notebooks have only 256K of on-die cache.

Q. What is the speed of the backside cache?

A. The ratio of processor speed to backside level 2 cache speed is 2.5 to 1. In other words, the cache speed is 200 MHz for the 500-MHz processor, and 160 MHz for the 400-MHz processor.

Q. How much level 1 cache is on the processor?

A. There is 64K of level 1 cache—32K for instruction and 32K for data. PC notebooks usually provide just 32K.

Q. Is the processor still on a daughter card?

A. Yes. The processor, cache, ROM, and memory slots are all on the daughter card.

Q. Will Apple offer processor card upgrades for the previous PowerBook G3 Series models?

A. Apple has not announced plans to offer processor card upgrades.

FireWire

Q. How many FireWire ports does the new PowerBook have?

A. The new PowerBook features two FireWire ports for quick and easy transfer of large digital video footage from a DV camcorder or external hard drive. The PowerBook is the only notebook computer to feature two powered FireWire ports.

Q. Can FireWire devices be powered by the PowerBook?

A. Yes. Each FireWire port provides up to 6 watts of power for FireWire devices, which means that devices such as a VST external hard drive can be used without an external power adapter.

Q. How does the use of FireWire affect battery life?

A. Operating self-powered FireWire devices, such as a DV camera, from PowerBook battery power does not affect battery life significantly. Operating devices that draw power, such as an external FireWire hard drive, will reduce battery life, depending on the device's power requirements.

Q. How does FireWire work with digital video (DV) software?

A. The FireWire port is used to quickly transfer data from DV camcorders or from files stored on a hard drive. DV editing software such as Apple's Final Cut Pro 1.2 accesses these files for the creation of Desktop Movies.

Desktop Movies

Q. Can I use Final Cut Pro and iMovie software on the PowerBook?

A. Final Cut Pro 1.2 software is available for use on the PowerBook. iMovie software currently ships only on iMac DV models.

Q. What peripherals do I need to make Apple Desktop Movies?

A. To make Desktop Movies using the PowerBook and video editing software such as Apple's Final Cut Pro, all you need is a DV camcorder and a FireWire cable. You can also use an analog camcorder with a media converter to go from an analog video signal to a digital one. Also check the system requirements for your software. DV software generally requires 128MB of RAM.

AirPort

Q. Can I add AirPort wireless Internet capability to the new PowerBook?

A. Yes. All new PowerBook models include two built-in antennas, an AirPort Card slot, and AirPort software preinstalled. All you need is an AirPort Card and an AirPort Base Station.

Q. How do I install the AirPort Card?

A. The AirPort Card installs in a special slot under the PowerBook keyboard. Simply plug in the antenna cable, and then slide the card into its connector.

Q. Where are the antennas located?

A. The two antennas are built into the frame around the display.

Q. Does AirPort require additional software?

A. AirPort software ships on every PowerBook system. The software includes the AirPort Setup Assistant, which walks you through the setup process.

Q. Do I need a special connection to use AirPort?

A. No. AirPort works with your telephone or Ethernet line, or with a DSL or cable modem.

Memory

Q. What is the maximum memory capacity of the new PowerBook?

A. The new PowerBook supports up to 512MB of RAM. There are two RAM slots that accommodate up to 256MB each. One slot is on the top of the processor daughter card, and the other slot is on the bottom. Both slots support up to 2-inch memory modules.

Q. Does the new PowerBook use the same memory as the PowerBook G3 Series?

A. Like its predecessor, the new PowerBook uses industry-standard SO-DIMM memory modules. However, due to the higher-performance 100-MHz system bus in the new PowerBook, it requires faster PC100 SDRAM.

Q. What is PC100 SDRAM?

A. PC100 SDRAM is high-performance, industry-standard memory. The term PC100 refers to the speed rating of the RAM; 100-MHz RAM is used to achieve the best performance with the 100-MHz system bus in the new PowerBook.

Q. How do I upgrade the memory?

A. The memory expansion slot is located on the processor daughter card, below the PowerBook keyboard. Remove the keyboard and heat shield, and you can add memory to the upper RAM slot. You can access the lower RAM slot by removing the processor daughter card.

Battery and Power Adapter

Q. What is the battery life of the new PowerBook?

A. The new PowerBook leads the industry in battery life, running for up to 5 hours on one battery and up to 10 hours on two batteries using the power-saving features in the Energy control panel. Battery life varies depending on configuration and use.

Q. What is battery life when playing a DVD movie?

A. When playing DVD movies, battery life is up to 2 hours with one battery. Batteries can be swapped while the system is in sleep mode if required.

Q. How long does it take to charge the PowerBook battery?

A. The battery requires approximately 2.5 hours to charge completely when the system is shut down or in sleep, and approximately 3.5 hours while in use.

Q. What is the watt-hour rating of the battery?

A. The battery stores 50 watt hours.

Q. How much time do you have to swap in a new battery while the system is in sleep mode?

A. The backup battery maintains the contents of RAM for up to 3 minutes. If the system has 512MB of RAM installed, sleep-swap time is reduced to 1 minute.

Q. What do the lights on the side of the battery do?

A. The four lights on the outside edge of the battery are the battery charge indicators. You can press the button next to the lights to see how much charge is left in the battery. The battery indicates the amount of charge in one-quarter increments, from 25 percent to 100 percent. These lights also illuminate when the system is plugged into AC power to indicate that the battery is charging. The lights go off after charging is complete.

Q. Do the batteries for previous PowerBook G3 Series models work with the new PowerBook?

A. Batteries from the previous generation of PowerBook G3 Series computers (models with a bronze keyboard) work with the new PowerBook. The batteries from earlier systems do not work with the new PowerBook.

Q. Does the new PowerBook have a different power adapter?

A. Yes. The new power adapter is the same as that used with the Apple iBook computer. Its improvements include a unique cord management feature—the cord wraps around the outer edge of the power adapter.

Q. Does the power adapter used with the previous PowerBook G3 Series models work with the new PowerBook?

A. Yes. Both products are 45-watt power adapters.

Design

Q. What are the size and weight of the new PowerBook?

A. Among desktop-replacement notebook computers, the new PowerBook is the lightest and most full featured. It measures 10.4 by 12.7 by 1.7 inches and weighs approximately 6.1 pounds with a battery and DVD-ROM drive installed. When the DVD-ROM expansion module is replaced with the weight-saving module, the system weighs 5.7 pounds, including the battery.*

Q. Does the sleep light pulse, or does it blink as in the previous generation?

A. The sleep light pulses, just as it does on the iBook. This makes it easier to see than a light that flashes.

Q. Is the hard disk drive removable?

A. Yes. You can remove the hard disk drive for security or servicing. To get to the hard drive, flip back the keyboard and remove the heat shield and processor daughter card. Locate the tab that is connected to the hard drive carrier and pull it toward you. This lifts the drive up and allows you to disengage the connector on the main logic board.

Q. Does the trackpad have "tap, double tap" functionality?

A. Yes. You activate it through the Trackpad control panel. This feature allows you to use the trackpad to click, double-click, and drag. Many customers like this option because it offers an economy of motion.

Q. Is there a docking station or port replicator for the system?

A. Apple will not be providing a docking station or port replicator for the PowerBook. Pilot Technologies (www.pilot-tech.com) expects to make a port replicator for the PowerBook.

*Weight depends on configuration and manufacturing process.

Security

Q. Does the system have a keyboard lockdown mechanism?

A. Yes. The new keyboard lock is located between the F4 and F5 keys. You use a small standard screwdriver to activate the lock, which locks the keyboard down to prevent someone from opening it easily. This feature is designed to prevent casual theft of components like an AirPort Card or RAM from the system. The new PowerBook also has a slot for a Kensington lockdown cable.

Q. How does the Mac OS 9 Voiceprint Password feature work?

A. Voiceprint Password is built into every new PowerBook, and the built-in microphone makes it easy to use. This security feature keeps others from getting into your PowerBook files and applications in case it is lost, stolen, or left unattended. You can set up voice verification through the Multiple Users control panel.

Storage and Expansion

Q. Which hard drives are available?

A. There are three hard disk drive capacities: 6GB, 12GB, and 18GB. The 18GB drive is available only through the Apple Store when you configure your own system.

Q. What does Ultra ATA/66 mean in terms of performance?

A. Ultra ATA is the drive interface, and 66 refers to the speed (in megabytes per second) of the drive connection. This new interface increases bandwidth and improves hard disk performance over the previous PowerBook by more than 50 percent.

Q. What is the speed of the DVD drive?

A. The DVD-ROM drive plays DVDs at up to 6x speed. It plays CD-ROMs at up to 24x speed.

Q. Can the DVD-ROM drive play CDs and DVD-RAM discs?

A. Yes. The DVD-ROM drive reads all the same formats as a CD-ROM drive. This includes audio CDs, Photo CDs, and software CDs. The drive also reads DVD-RAM discs.

Q. What types of modules does the expansion bay accept?

A. The expansion bay on the right side of the system accommodates either storage or battery modules. It has a small door that folds back when you insert a storage module, such as a DVD-ROM drive. The left bay accommodates only battery modules. Both bays can accept the weight-saving module.

Q. Do expansion bay modules from previous PowerBook G3 Series systems work in the new system?

A. Yes. Expansion bay modules from the PowerBook G3 Series systems (with a bronze keyboard) work in the new PowerBook.

Q. Is the expansion bay hot-swappable?

A. Yes. All storage devices for the expansion bay are hot-swappable. There is no need to turn the system off or put it into sleep mode to exchange storage devices such as DVD-ROM, Zip, or SuperDisk drives. However, you must unmount any media, such as a DVD, CD, or Zip disk, from the storage device before commencing a hot swap.

Video and Graphics

Q. What graphics controller is used with the new PowerBook, and how is it better than the controller in PowerBook G3 Series models?

A. The new PowerBook is the first notebook computer to incorporate the new RAGE Mobility 128 graphics controller from ATI Technologies. It provides AGP 2X support and improved 2D and 3D graphics acceleration, which means improved performance in design applications as well as games.

Q. How much video memory comes with the system, and is it upgradable?

A. The new PowerBook ships with 8MB of SDRAM video memory, which provides for displaying millions of colors on both the internal PowerBook display and an external monitor. The video RAM is soldered onto the logic board and is not upgradable.

Q. What is resolution scaling?

A. Traditionally, notebooks have been limited to just one resolution because LCD displays are digital and have a fixed number of pixels—the native resolution (for example, 1024 by 768 pixels). You can increase the size of, or zoom, the images on your PowerBook computer's 14.1-inch display by switching from the native 1024- by 768-pixel resolution to a scaled resolution—either 800 by 600 or 640 by 480 pixels. The new, larger image is remapped into the fixed pixel space of the LCD display. This remapped image is optimized through interpolation and anti-aliasing technology. Because they are remapped, the scaled resolutions may not appear as sharp as the native resolution.

Q. Can you use an external monitor with the new PowerBook?

A. The PowerBook connects to an external monitor through the VGA video output port. When using both internal and external displays, the system supports up to 1152- by 870-pixel resolution in millions of colors on a 21-inch monitor. When the PowerBook is running with lid closed, it supports up to 1280- by 1024-pixel resolution in millions of colors on an external monitor.

Q. What video output options are provided by the S-video and VGA ports?

A. The VGA port allows external display on video projectors and VGA displays with up to 1280- by 1024-pixel resolution. The S-video port allows external display through TVs, or display and recording through VCRs.

Q. What are the dual-display and video-mirroring modes?

A. The new PowerBook features both dual-display and video-mirroring capability.

For dual-display mode, simply connect an external monitor, and the system defaults to this mode. Dual display extends your desktop workspace, literally adding screen "real estate." In this mode, application windows can be placed on either display, and the cursor can move

back and forth between displays. This feature is especially helpful when working in graphics applications like Adobe Photoshop. Customers can place the image on the external monitor and leave their tools and palettes on the internal display of the PowerBook.

Video mirroring is also a useful feature, especially for presenters who use a video projector. Video mirroring allows you to see your presentation or other work on the internal PowerBook display as well as on the external projection device. With its built-in video output, the PowerBook makes an ideal teacher workstation, as many educational environments are equipped with TV monitors.

Q. Can I operate the system with the lid closed?

A. Yes. In this mode, all 8MB of video memory is used to display colors on the external display. This allows you to view the maximum resolution of 1280 by 1024 pixels at millions of colors on the largest external displays. The PowerBook must be plugged into the AC power adapter. To start up the PowerBook with the display closed and an external monitor attached, connect an Apple USB keyboard and mouse and then press the Power button on the external keyboard. To activate the internal display again, put the PowerBook to sleep and wake it with the display open.

Q. Does the PowerBook support the digital graphics interface (DVI) on the new Apple Cinema Display and the 15-inch flat-panel Apple Studio Display?

A. No. The flat-panel displays with the DVI connector are supported only by Power Mac G4 systems. The PowerBook can be used with 17- and 21-inch Apple CRT monitors that have VGA ports.

DVD

Q. Can I watch a DVD-Video movie on the new PowerBook?

A. Yes. All new PowerBook models play DVD movies.

Q. Does the new PowerBook use hardware or software DVD decoding?

A. The new PowerBook uses the advanced processing capabilities of the PowerPC G3 processor and ATI RAGE Mobility 128 graphics controller to perform DVD decoding through software.

Q. Can I watch a DVD movie on an external display or television?

A. Yes. First, attach your display or monitor to the VGA or S-video port. Then, using the "arrange" feature of the Monitors control panel, drag the menu bar icon from the smaller internal display to the larger external display. This makes the external display the main monitor for your system. When you start the DVD Player application, the movie will appear on the external display. Note that if you use an external TV monitor, a TV Control Strip module will help adjust the resolution for best viewing on your TV.

Input/Output Technologies

Q. What are the new input/output (I/O) technologies on the PowerBook?

A. The new PowerBook features two 400-Mbps FireWire ports for use with DV camcorders, external FireWire hard drives, or other peripherals.

Q. How does the system support SCSI devices?

A. A PC Card SCSI adapter from Adaptec is available from resellers or through the Apple Store. The adapter supports SCSI-2 and Ultra SCSI devices. A cable for SCSI-1 devices is available directly from Adaptec.

Q. What are the other I/O ports?

A. In addition to two FireWire ports, every PowerBook system includes two 12-Mbps USB (Universal Serial Bus) ports, a stereo sound input port, a stereo sound output port, a VGA port, an S-video port, an infrared port, and a port for the power adapter. Every system also includes a PC Card slot and a hot-swappable expansion bay.

Communications

Q. What type of high-speed networking is built into the new PowerBook?

A. The system features 10/100BASE-T Ethernet. The interface is autosensing, so you simply plug in the Ethernet cable and let the interface configure itself appropriately for the type of network you have (10 megabits or 100 megabits). This port can also be used to connect to a DSL line or cable modem.

Q. What is the speed of the built-in modem?

A. All configurations feature a modem that operates at up to 56 Kbps.*

Q. Does fax software come with the system?

A. Yes. The PowerBook includes FAXstf software.

Q. Can I use a cellular phone with this modem?

A. If customers need a modem with cellular capability, they can purchase a PC Card modem to use in the PC Card/CardBus slot of the system.

Q. Does the modem have protection against PBX systems?

A. Yes. However, we advise customers to ask about the connection before plugging the modem into an unfamiliar socket.

Q. Does the modem work internationally?

A. Yes. With the proper telephone cables and connectors, you can use the PowerBook modem internationally.

Q. Does the new PowerBook have infrared capability?

A. Yes. It has 4-Mbps infrared (IrDA) capability. The infrared window is located on the back of the system.

*Actual modem speeds lower; speed depends on connection rate and other factors.

Sound

Q. Can you add speakers or a microphone to the new PowerBook?

A. Yes. Stereo speakers and a microphone are already integrated into the PowerBook. You can also connect external speakers and an external microphone to the system via the stereo input and output ports located on the back of the system. An external audio source can be used if it generates line-level output. To input sound from audio equipment with line-level output, you may need the appropriate adapters, which are available from most electronics stores. The Apple PlainTalk Microphone can be used with the PowerBook, but the Apple Omni-directional Microphone is not compatible with this computer.

PC Card/CardBus Slot

Q. What types of cards does the PC Card slot support?

A. The PC Card slot accepts Type I or Type II PC Cards and CardBus cards.

Q. How does the manual eject mechanism work?

A. To eject a card, drag the card's icon to the Trash. This prepares the system for manual ejection. Then push the PC Card eject button once to release the button.

Q. Do Zoomed Video cards work in the PowerBook?

A. Yes. Zoomed Video cards for video capture and video input work in the PC Card/CardBus slot on the PowerBook.

Software

Q. What software is included with the new PowerBook?

A. The PowerBook includes the following software.

- Operating system software: Mac OS 9 with QuickTime, Apple File Synchronization, Apple Location Manager, DVD Player, QuickTime Player, and AppleCD Audio Player
- Internet software: Microsoft Internet Explorer, Netscape Communicator, and Microsoft Outlook Express
- Productivity software: FAXstf, Palm Desktop, and Adobe Acrobat Reader

Cables

Q. What cables and adapters ship with the PowerBook?

A. The new PowerBook ships with a telephone cable for use with U.S. modems, a VGA to Macintosh adapter for older Macintosh displays, and an S-video to composite adapter for connection to a VCR.

Standard Configurations and Build-to-Order Options

Q. What standard configurations are available?

A. Apple offers the following standard configurations.

	M7630LL/A	M7633LL/A
Processor	400-MHz PowerPC G3	500-MHz PowerPC G3
Level 2 cache	1MB	1MB
Memory	64MB SDRAM	128MB SDRAM
Hard drive	6GB Ultra ATA/66	12GB Ultra ATA/66
Optical drive	DVD-ROM	DVD-ROM
Video controller	ATI RAGE Mobility 128	ATI RAGE Mobility 128
Video memory	8MB SDRAM	8MB SDRAM
Wireless networking	AirPort ready	AirPort ready
Ethernet	10/100BASE-T	10/100BASE-T
Modem	56K V.90	56K V.90
Display	14.1-inch (diagonal) TFT	14.1-inch (diagonal) TFT

Q. What build-to-order options are available through the Apple Store?

A. The following options are available.

Processor	400- or 500-MHz PowerPC G3 with 1MB cache
Memory	64MB, 128MB, 192MB, 256MB, 384MB, or 512MB
Hard drive	6GB, 12GB, or 18GB Ultra ATA/66
Wireless networking	AirPort ready or AirPort enabled

New PowerBook Versus Previous Generation

Q. What features were carried over from the previous PowerBook design?

A. The PowerBook G3 Series and the new PowerBook both include a thin, light design; 14.1-inch TFT flat-panel display; built-in 56K V.90 modem; built-in 10/100BASE-T Ethernet; infrared (IrDA) port; two USB ports; VGA and S-video output ports; stereo input/output ports; hot-swappable expansion bay; and PC Card slot for one Type I/II or CardBus card.

Q. What are the improvements over the previous PowerBook design?

A. The following chart compares the features of the new PowerBook and the PowerBook G3 Series.

	PowerBook	PowerBook G3 Series
PowerPC G3 processor	400 and 500 MHz	333 and 400 MHz
Level 2 cache	1MB	512K, 1MB
Video controller	ATI RAGE Mobility 128	ATI RAGE LT Pro
System bus	100 MHz	66 MHz
Standard RAM	64MB and 128MB	64MB
Maximum RAM	512MB	384MB
Hard drive	6GB, 12GB, and 18GB Ultra ATA/66	4GB, 6GB, and 10GB Ultra ATA/33
Optical drive	DVD-ROM	CD-ROM or DVD-ROM
Wireless networking	11-Mbps AirPort support	Third-party 2-Mbps PC Card
High-speed interface	Two FireWire ports	One SCSI port
Power adapter	Round (same as for iBook)	Rectangular

For More Information

For more information about the new PowerBook, visit www.apple.com/powerbook.

Apple

1 Infinite Loop
Cupertino, CA 95014
408-996-1010
www.apple.com

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February 2000 L05017A